

ETSI EN 301 489-17 V2.1.1 (2009-05)

ETSI EN 301 489-1 V1.8.1 (2008-04)

TEST REPORT

For

Xingtel Xiamen Group Co., Ltd.

Xingtel Building, Chuangxin Road, Torch Hi-Tech Industrial District,
Xiamen 361006, PR China

Model: i-700

Report Type: Original Report	Product Type: iPhone Complimate
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Report Number: RSZ111017004-02b	
Report Date: 2011-12-08	
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* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Xingtel Xiamen Group Co., Ltd.*'s product, model number: *i-700* or the "EUT" as referred to in this report was a base of *iPhone Complimate*, which measured approximately: 17.9 cm (L) x 10.6cm (W) x 4.3cm (H), rated input voltage: DC 6 V adapter.

Adapter information: AC power adapter
Model: MN-A006-E130;
Input: 100-240V~50/60Hz, 0.3A Max;
Output: DC 6V, 700mA / DC 6V, 300mA

** All measurement and test data in this report was gathered from production sample serial number: 1110045 (Assigned by BACL, Shenzhen). The EUT was received on 2011-10-17.*

Objective

This test report is prepared on behalf of *Xingtel Xiamen Group Co., Ltd.* in accordance with ETSI EN 301 489-1 V1.8.1 (2008-04) Plus Provisions of ETSI EN 301 489-17 V2.1.1 (2009-05), Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems

The objective of the manufacturer is to determine compliance with ETSI EN 301 489-1 V1.8.1 (2008-04) Plus Provisions of ETSI EN 301 489-17 V2.1.1 (2009-05).

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ETSI EN 301 489-1 V1.8.1 (2008-04).

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

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SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

Equipment Modifications

No modifications were made to the EUT.

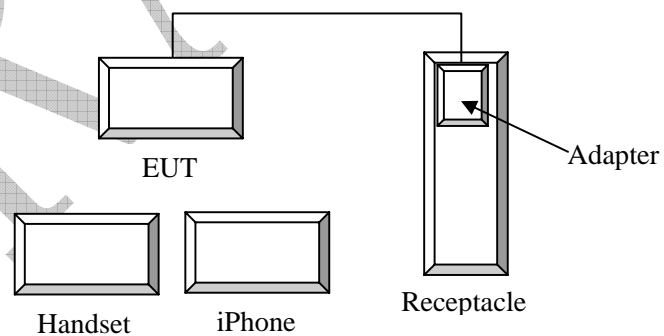
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Apple	iPhone 4	A1332	EMC380A

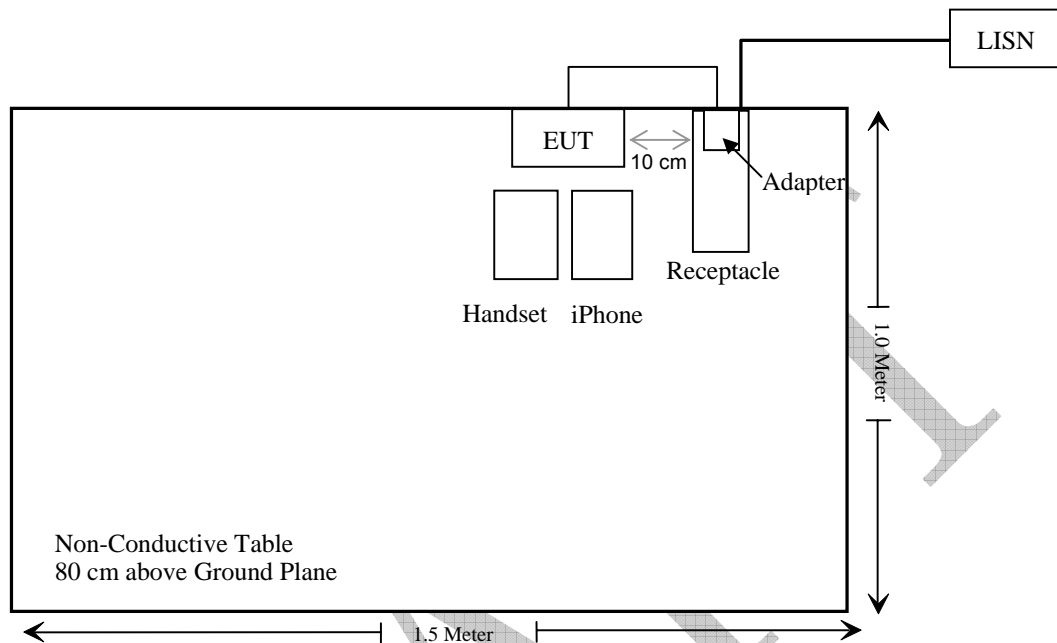
External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Detectable DC Power Cable	1.5	EUT	Adapter

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

ETSI EN 301 489-17 V2.1.1 (2009-05)	Description of Test	Result
§7.1	Reference to clauses EN 301 489-1 §8.4 AC mains power input/output ports	Compliance
	Reference to clauses EN 301 489-1 §8.3 DC power input/output ports	N/A*
	Reference to clauses EN 301 489-1 §8.2 Enclosure of ancillary equipment measured on a stand alone basis	Compliance
	Reference to clauses EN 301 489-1 §8.5 Harmonic current emissions (AC mains input port)	Compliance
	Reference to clauses EN 301 489-1 §8.6 Voltage fluctuations and flicker (AC mains input port)	Compliance
	Reference to clauses EN 301 489-1 §8.7 Telecommunication ports	N/A*
§7.2	Reference to clauses EN 301 489-1 §9.2 Radio frequency electromagnetic field (80 MHz to 1 000 MHz and 1 400 MHz to 2 700 MHz)(EN 61000-4-3)	Compliance
	Reference to clauses EN 301 489-1 §9.3 Electrostatic discharge (EN 61000-4-2)	Compliance
	Reference to clauses EN 301 489-1 §9.4 Fast transients, common mode (EN 61000-4-4)	Compliance
	Reference to clauses EN 301 489-1 §9.5 Radio frequency, common mode (EN 61000-4-6)	Compliance
	Reference to clauses EN 301 489-1 §9.6 Transients and surges in the vehicular environment (ISO 7637-2)	N/A*
	Reference to clauses EN 301 489-1 §9.8 Surges (EN 61000-4-5)	Compliance
	Reference to clauses EN 301 489-1 §9.7 Voltage dips and interruptions (EN 61000-4-11)	Compliance

N/A* Please refer to Applicability overview tables in sections 7.1 and 7.2 of EN 301 489-1 requirements for Radio and ancillary equipment for portable use (e.g. portable equipment)

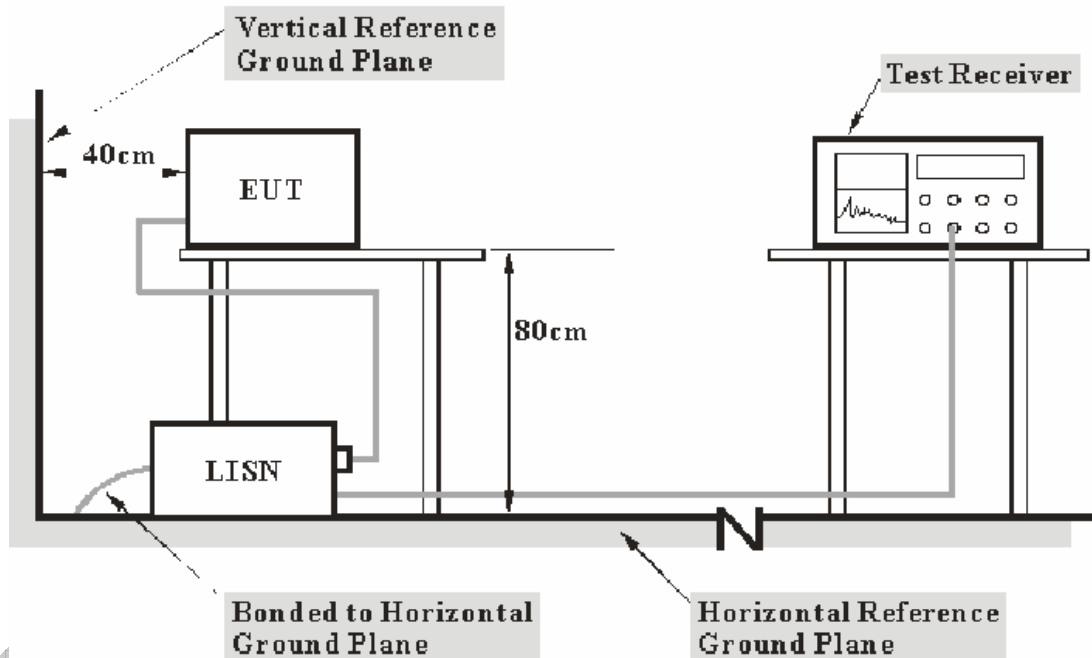
ETSI EN 301 489-17 V2.1.1 (2009-05) §7.1 – AC LINE CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on CISPR 16-4-4 The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 2.4 dB.

EUT Setup



- Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per EN 301 489-1 measurement procedures. The specification used was with the EN 301 489-1 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to AC 230V/50Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<u>Frequency Range</u>	<u>IFBW</u>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2011-03-03	2012-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-03-09	2012-03-08

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the ETSI EN 301 489-1, with the worst margin reading of:

3.84 at 0.400 MHz in the Neutral conducted mode

Test Data

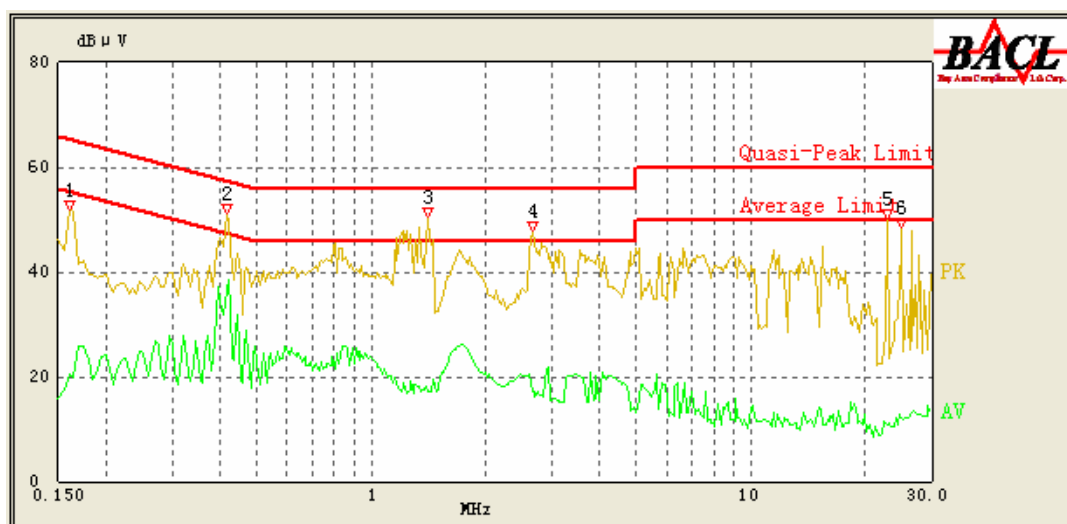
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

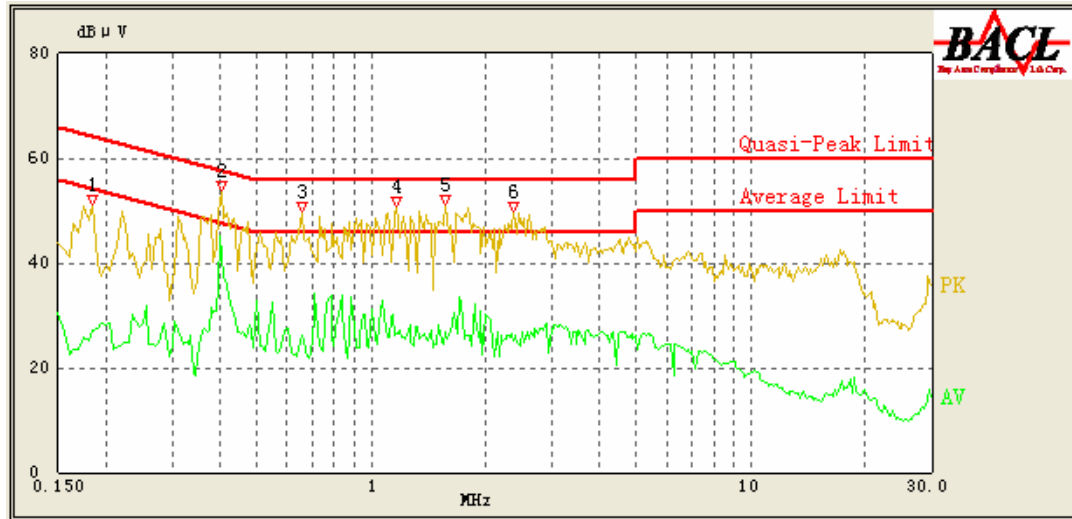
* The testing was performed by Jimmy Xiao on 2011-12-02.

Test Mode: Bluetooth Communicating

AC 230 V, 50 Hz, Line:



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
0.415	36.66	10.23	48.43	11.77	Ave.
0.415	43.61	10.23	58.43	14.82	QP
2.655	28.41	10.39	56.00	27.59	QP
1.400	18.18	10.28	46.00	27.82	Ave.
2.655	17.10	10.39	46.00	28.90	Ave.
1.405	26.86	10.28	56.00	29.14	QP
0.160	35.21	10.23	65.71	30.50	QP
0.160	20.37	10.23	55.71	35.34	Ave.
24.970	12.04	12.24	50.00	37.96	Ave.
23.010	10.85	11.96	50.00	39.15	Ave.
24.970	17.42	12.24	60.00	42.58	QP
22.820	16.22	11.93	60.00	43.78	QP

AC 230 V, 50 Hz, Neutral:

Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
0.400	45.02	10.23	48.86	3.84	Ave.
0.405	54.29	10.23	58.71	4.42	QP
1.160	42.71	10.25	56.00	13.29	QP
1.575	42.55	10.29	56.00	13.45	QP
2.380	40.64	10.36	56.00	15.36	QP
0.660	37.61	10.24	56.00	18.39	QP
1.575	26.69	10.29	46.00	19.31	Ave.
1.155	26.28	10.25	46.00	19.72	Ave.
0.655	26.01	10.24	46.00	19.99	Ave.
2.365	25.09	10.36	46.00	20.91	Ave.
0.185	37.39	10.23	65.00	27.61	QP
0.185	27.06	10.23	55.00	27.94	Ave.

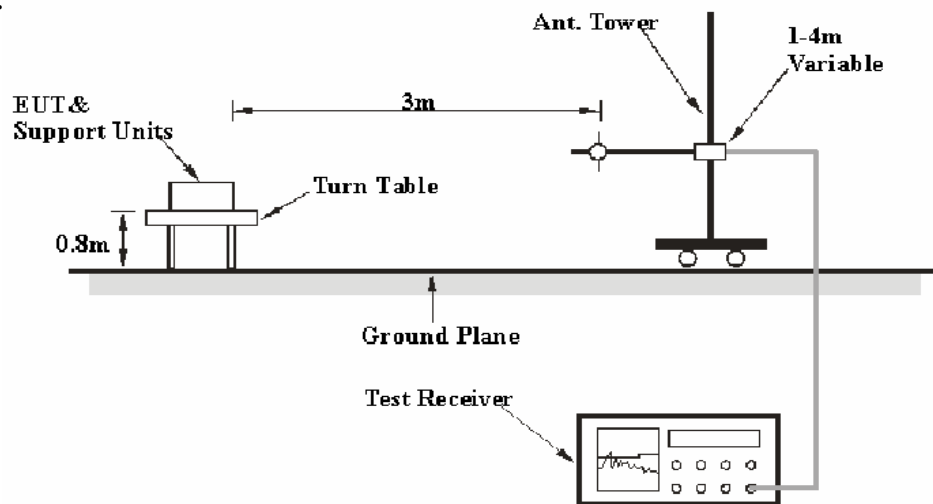
ETSI EN 301 489-17 V2.1.1 (2009-05) §7.1 - RADIATED EMISSIONS**Measurement Uncertainty**

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

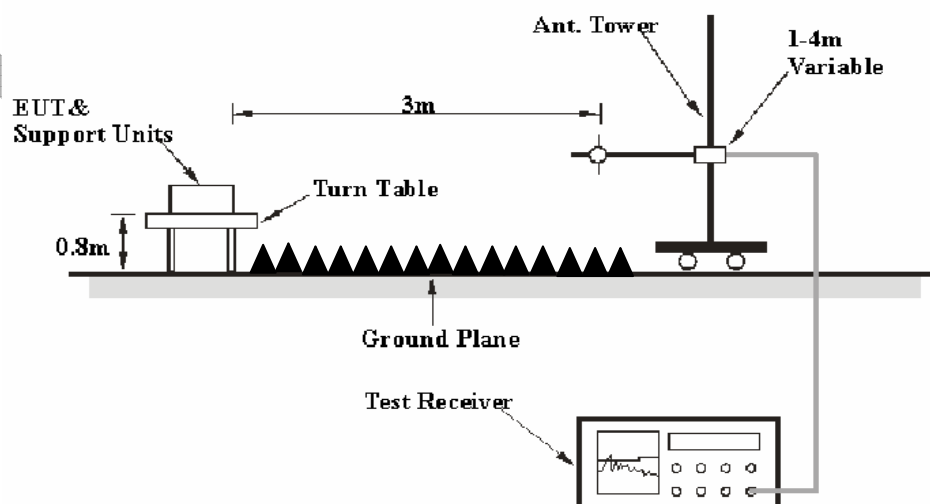
Based on CISPR 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB.

Test System Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters, using the setup accordance with the EN 301 489-1. The specification used was the EN 301 489-1.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to a 230 VAC/50 Hz power source.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 6 GHz.

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>VBW</i>	<i>Detector</i>
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 6 GHz	1 MHz	3 MHz	Peak
1000 MHz – 6 GHz	1 MHz	10Hz	Ave

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, and peak & average for above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the data in the following table, the EUT complied with the ETSI EN 301 489-1, with the worst margin reading of:

6.7 dB at 84.567500 MHz in the Vertical polarization below 1 GHz

Test Data

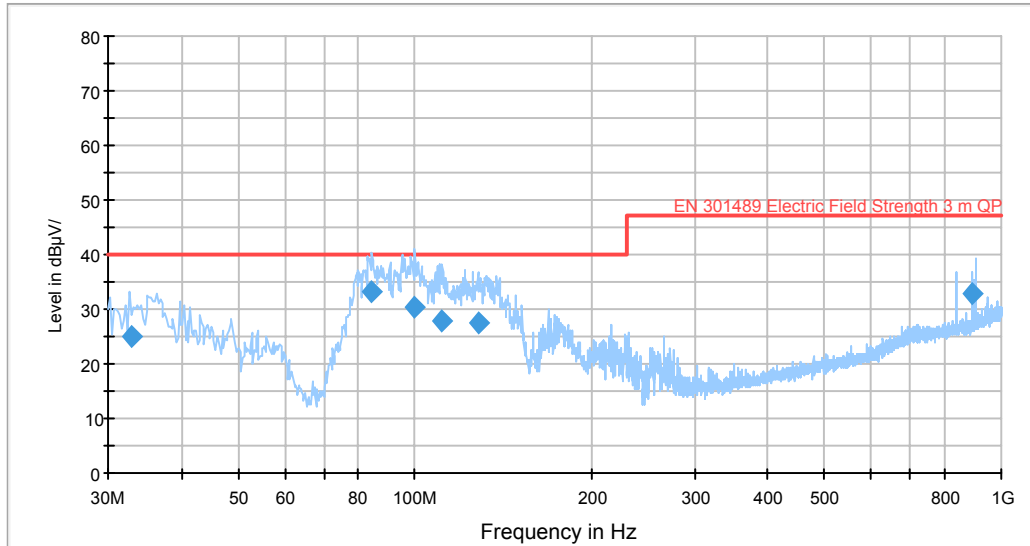
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48%
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-12-02.

Below 1 GHz*Test Mode: Bluetooth communicating*

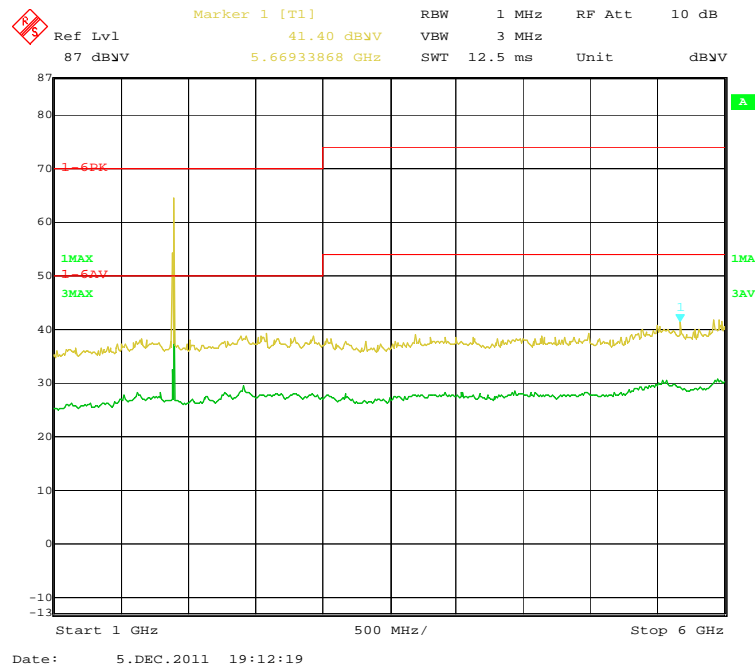
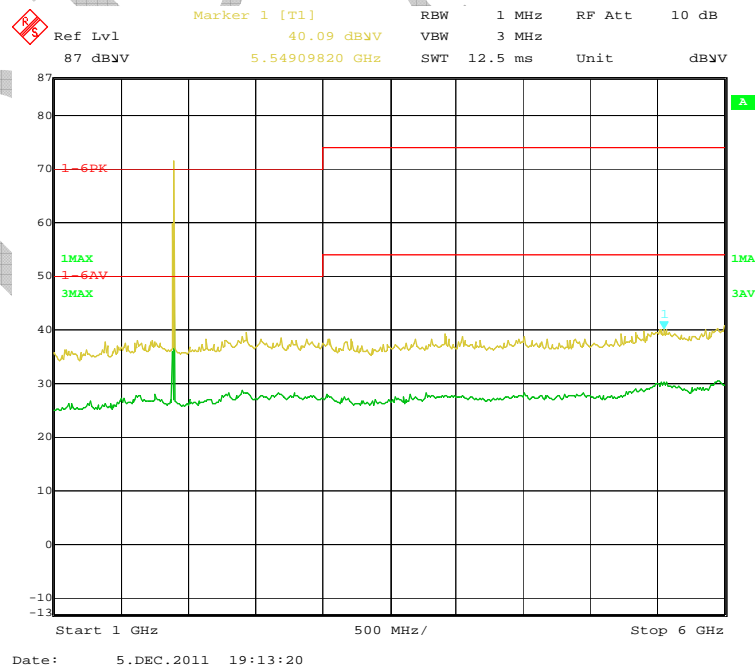
Auto Test(EN301489)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity	Turntable Position (Degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
84.567500	33.3	100.0	V	176.0	-17.9	40.0	6.7
99.888750	30.5	121.0	V	241.0	-14.6	40.0	9.5
110.721500	28.0	141.0	V	268.0	-13.3	40.0	12.0
128.121750	27.7	222.0	H	154.0	-12.5	40.0	12.3
890.628250	32.8	234.0	V	128.0	-1.2	47.0	14.2
32.779000	25.1	112.0	V	123.0	-7.3	40.0	14.9

Above 1 GHz*Test Mode: Bluetooth communicating*

Please refer to the following plots:

Horizontal**Vertical**

Note: The data which below 20 dB limit was not recorded.

ETSI EN 301 489-17 V2.1.1 (2009-05) §7.1 - HARMONIC CURRENT EMISSIONS

According to EN 61000-3-2:2006 + A1:2009 + A2:2009 section 7: Equipment with a rated power of 75 W or less, other than lighting equipment, are not included in this standard.

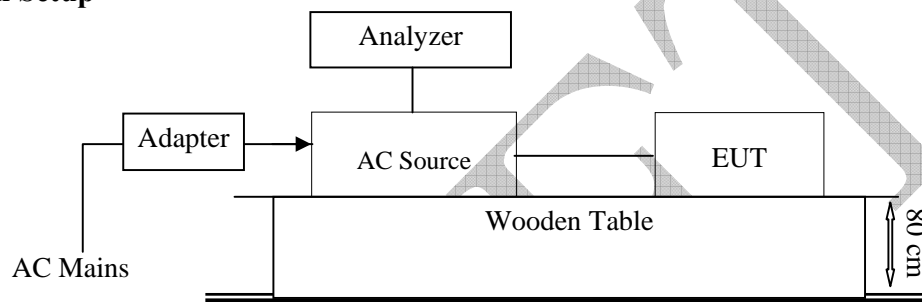
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ETSI EN 301 489-17 V2.1.1 (2009-05) §7.1-VOLTAGE FLUCTUATION AND FLICKER

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Harmonic/Flicker Analyzer	DPA 500N	V0939105176	2011-11-11	2012-11-10
EM Test	AC Source	ACS500	1101-02	2011-03-25	2012-03-24

Test System Setup



Test Standard

EN 61000-3-3:2008

Flicker Test Limits:

The limits shall be applicable to voltage fluctuations and flicker at the supply terminals of the equipment under test, measured or calculated according to clause 4 under test conditions described in clause 6 and annex A. Tests made to prove compliance with the limits are considered to be type tests.

The following limits apply:

- the value of Pst shall not be greater than 1,0;
 - the value of Plt shall not be greater than 0,65;
 - the value of d(t) during a voltage change shall not exceed 3,3 % for more than 500 ms;
 - the relative steady-state voltage change, dc, shall not exceed 3,3 %;
 - the maximum relative voltage change dmax, shall not exceed
 - a) 4 % without additional conditions;
 - b) 6 % for equipment which is:
 - switched manually, or
 - switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.
- NOTE: The cycling frequency will be further limited by the Pst and Plt limit. For example: a dmax of 6 % producing a rectangular voltage change characteristic twice per hour will give a Plt of about 0.65.

c) 7 % for equipment which is

- attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
- switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

In the case of equipment having several separately controlled circuits in accordance with 6.6, limits b) and c) shall apply only if there is delayed or manual restart after a power supply interruption; for all equipment with automatic switching which is energized immediately on restoration of supply after a power supply interruption, limits a) shall apply; for all equipment with manual switching, limits b) or c) shall apply depending on the rate of switching. Pst and Plt requirements shall not be applied to voltage changes caused by manual switching. The limits shall not be applied to voltage changes associated with emergency switching or emergency interruptions.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

Date of test:	20:27 27 Nov. 2011
Tester:	Jimmy Xiao
Standard used:	EN 61000-3-3 Flicker
Long time (Pst):	10 min
Observation time:	120 min (12 Flicker measurement)
Flickermeter:	230V / 50Hz
Customer:	Xingtel Xiamen Group Co., Ltd.
E. U. T.:	iPhone Complimate
Model:	i-700
Test mode:	Communicating (Bluetooth)

Maximum Flicker results

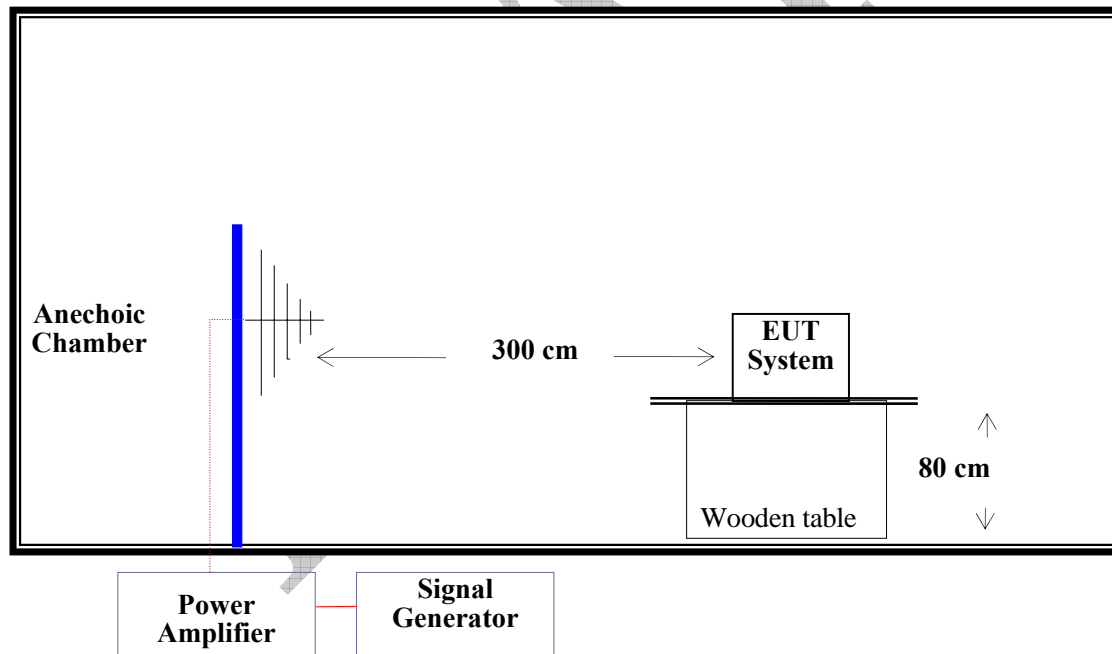
	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.017	3.30	PASS
dmax [%]	0.198	4.00	PASS
dt [s]	0.000	0.50	PASS

**Test Setup photo**

**ETSI EN 301 489-17 V2.1.1 (2009-05) §7.2 - RF ELECTROMAGNETIC FIELD
(80-1000MHz, 1400-2700 MHz)****Test Equipment**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Amplifier Research	Field Meter	FM5004	302149	2011-03-26	2012-03-25
Amplifier Research	Amplifier Input/Output	200W1000/M2	15893	2011-01-14	2012-01-14
Amplifier Research	Sensor	FP5000	301825	2011-02-22	2012-02-22
HP	Signal Generator	HP8657A	2849U00982	2011-10-28	2012-10-27
Amplifier Research	Biconilog Antenna	AT1080	301902	2011-08-25	2012-08-25
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp.(Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test System Setup

Test Standard

ETSI EN 301 489-1 V1.8.1 / EN 61000-4-3:2006

Test Level 2 at 3V / m

Test Levels and Performance Criterion

Test Level

Level	Field Strength (V/m)
1.	1
2.	3
3.	10
X.	Special

Performance Criterion: A**Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a CMU200 was used to monitor the EUT.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	3 V/m (Test Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80 - 1000 MHz and 1400-2700 MHz
4. Sweeping time of radiated	0.0015 decade/s
5. Dwell Time	1 Sec.

Test Data and Setup Photo**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-11-25.

Test Mode: Communicating (Bluetooth)

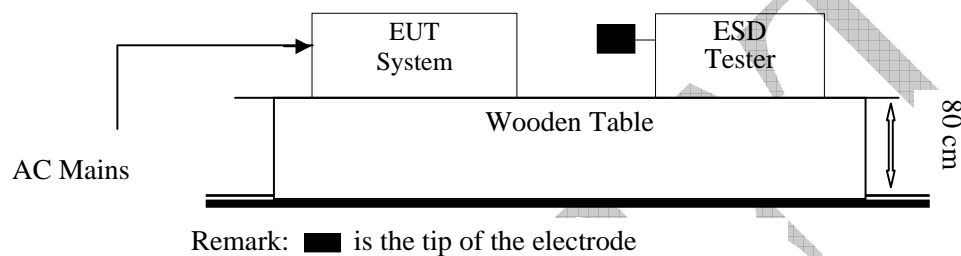
Frequency Range (MHz)	Front Side (3 V/m)		Rear Side (3 V/m)		Left Side (3 V/m)		Right Side (3 V/m)	
	VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	A	A	A	A	A	A	A	A
1400-2700	A	A	A	A	A	A	A	A



Test Setup Photo

ETSI EN 301 489-17 V2.1.1 (2009-05) §7.2 - ELECTROSTATIC DISCHARGE**Test Equipment**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	ESD Tester	Dito	302105	2011-10-27	2012-10-26
SUNOL SCIENCES	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04

Test System Setup

EN 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.5 by 1.0-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by 0.5-millimeter thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

Test Standard

ETSI EN 301 489-1 V1.8.1 / EN 61000-4-2:2009

Test Level 3 for Air Discharge at ± 8 kV

Test Level 2 for Contact Discharge at ± 4 kV

Test Level

Level	Test Voltage Contact Discharge (\pm kV)	Test Voltage Air Discharge (\pm kV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X.	Special	Special

Performance criterion: B

Test Procedure

Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Contact Discharge:

All the procedure shall be same as Section 8.3.1 of EN 61000-4-2, except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

Indirect discharge for vertical coupling plane

At least 20 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-11-25.

Test Mode: Communicating (Bluetooth)

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2 Test Points Location	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-8 kV	+8 kV	-15 kV	+15 kV
Insulative surface (10 points)	A	A	A	A	A	A	/	/
Slots (10 points)	A	A	A	A	A	A	/	/
RJ11 Port(1 point)	A	A	A	A	A	A	/	/
DC Jack Port (1 point)	A	A	A	A	A	A	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2 Test Points Location	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Screws(4 points)	A	A	A	A	/	/	/	/
i-phone Charging Port (2 points)	A	A	A	A	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

EN 61000-4-2 Test Points Location	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

EN 61000-4-2 Test Points Location	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

Air Discharge



Indirect Contact



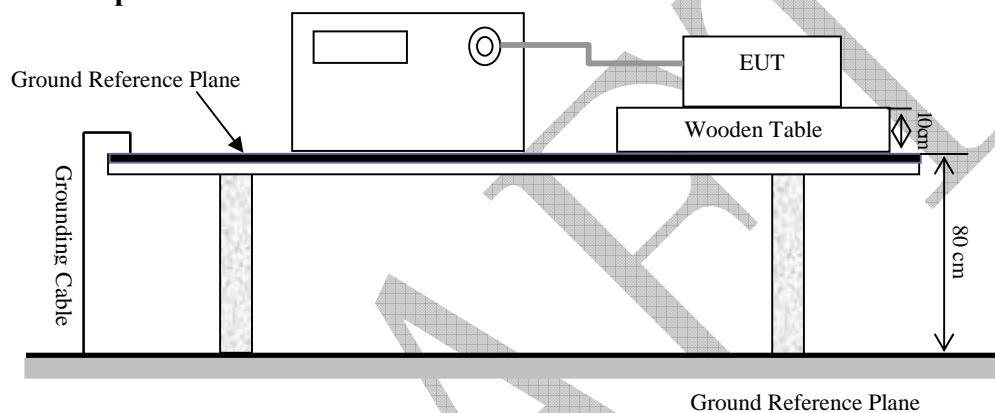
Test Setup Photos

ETSI EN 301 489-17 V2.1.1 (2009-05) §7.2 - ELECTRICAL FAST TRANSIENT IMMUNITY

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-N5	V0939105172	2011-07-04	2012-07-03
EM Test	Auto-transformer	MV2616	V0939105173	2011-07-04	2012-07-03

Test System Setup



Test Standard

ETSI EN 301 489-1 V1.8.1/EN 61000-4-4:2004
Test level 2 at 1 kV

Test Level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

Performance Criterion: B

Test Procedure

The EUT was arranged for Power Line Coupling and for I/O Line Coupling through a capacitive clamp, where applicable. (Note: The I/O coupling test using a capacitive clamp is performed on the I/O interface cables that are longer in length than 3 meters.) A metal ground plane 2.4 meter by 2.0 meter was placed between the floor and the table and is connected to the earth by a 2.0 meter ground rod. The ground rod is connected to the test facility's electrical earth.

Test Data and Setup Photo**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-11-27.

Test Mode: Bluetooth Communicating

EN 61000-4-4 Test Points		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
Power Supply AC Line of EUT	L1	A	A	A	A	/	/	/	/
	L2	A	A	A	A	/	/	/	/
	Earth	/	/	/	/	/	/	/	/
	L1+L2	A	A	A	A	/	/	/	/
	L1 + Earth	/	/	/	/	/	/	/	/
	L2 + Earth	/	/	/	/	/	/	/	/
	L1+L2+Earth	/	/	/	/	/	/	/	/



Test Setup photo

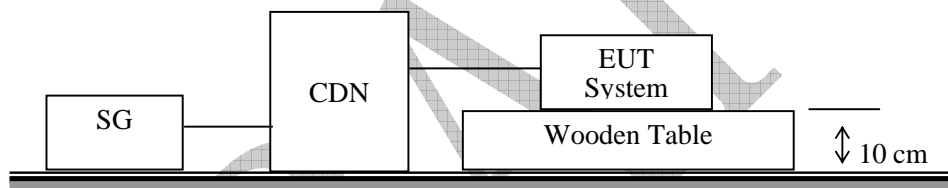
ETSI EN 301 489-17 V2.1.1 (2009-05) §7.2 - CONTINUOUS CONDUCTED DISTURBANCES (EN 61000-4-6)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	CDN	T2	1101-07	2011-04-28	2012-04-27
EM Test	C/S Tester	CWS500	303277	2011-11-03	2012-11-02
EM Test	Attenuator	6dB	303282	2011-11-15	2012-11-15
EM Test	Attenuator	6dB	303283	N/A	N/A
FCC	Bulk Current Injection Probe	F-120-9A	303284	2011-03-26	2012-03-26
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Setup



Test Standard

EN 301 489-1 V1.8.1/EN 61000-4-6:2009
Test level 2 at 3 V (e.m.f.), 0.15 MHz ~ 80 MHz,

Test Level

Level	Voltage Level (e.m.f.) (U_0)
1	1
2	3
3	10
X	Special

Performance Criterion: A

Test Procedure

- 1) Let the EUT work in test mode and test it.
- 2) The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3 m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 3) The disturbance signal described below is injected to EUT through CDN.
- 4) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 5) The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
- 6) The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 7) On the EUT operating situation during compliance testing and decide the EUT immunity criterion.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-11-25.

Test Mode: Bluetooth Communicating

Table 1: AC mains power input port

Frequency range: 150 kHz to 80 MHz

Modulation: Amplitude 80%, 1 kHz sine wave

Test level: 3V e.m.f.

Level	Voltage Level (e.m.f.) U_0	Pass	Fail
1	1	/	/
2	3	A	/
3	10	/	/
X	Special	/	/



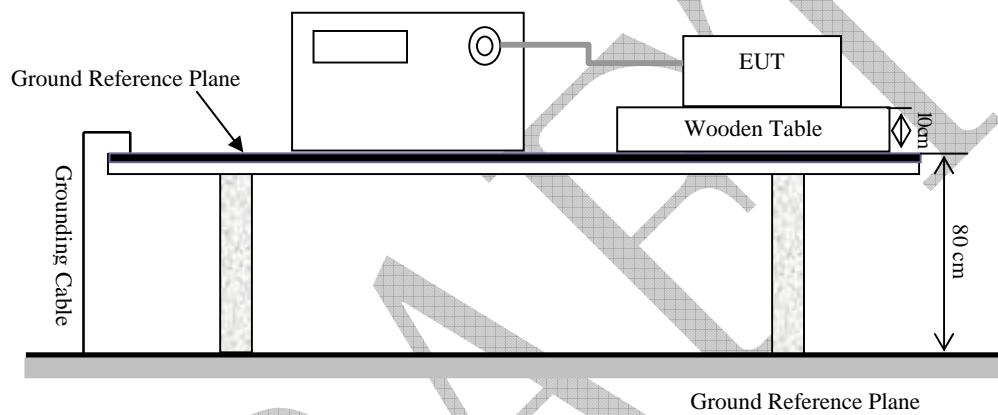
Test Setup photo

ETSI EN 301 489-17 V2.1.1 (2009-05) §7.2 - SURGES, LINE TO LINE AND LINE TO GROUND

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-N5	V0939105172	2011-07-04	2012-07-03
EM Test	Auto-transformer	MV2616	V0939105173	2011-07-04	2012-07-03

Test System Setup



Test Standard

ETSI EN 301 489-1 V1.8.1 / EN 61000-4-5:2006

L-N: Test level 2 at 1 kV

Test Level

Level	Open Circuit Output Test Voltage $\pm 10\%$
1	0.5 kV
2	1 kV
3	2 kV
4	4 kV
X	Special

Performance Criterion: B

Test Procedure

- 1) For line to line coupling mode, provide a 0.5 kV 1.2/50us voltage surge (at open-circuit condition).
- 2) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 3) Different phase angles are done individually.
- 4) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-11-27.

Test Mode: Bluetooth Communicating

Table 1: AC mains power input port

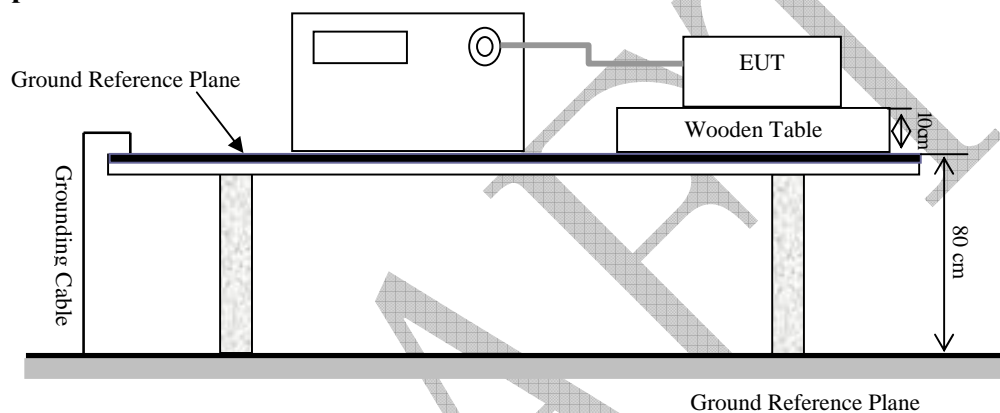
Level	Voltage	Poll	Path	Pass	Fail
1	0.5 kV	±	L-N	A	/
2	1 kV	±	L-N	A	/
3	2 kV	±	L-N, L-PE, N-PE	/	/
4	4 kV	±	L-N, L-PE, N-PE	/	/



Test Setup Photo

ETSI EN 301 489-17 V2.1.1 (2009-05) §7.2 - VOLTAGE DIPS AND INTERRUPTIONS IMMUNITY TEST**Test Equipment**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-N5	V0939105172	2011-07-04	2012-07-03
EM Test	Auto-transformer	MV2616	V0939105173	2011-07-04	2012-07-03

Test Setup**Test Standard**

ETSI EN 301 489-1 V1.8.1/EN 61000-4-11:2004
Test levels and Performance Criterion

Test Level

Test Level	Voltage dip and short interruptions %UT	Duration (periods)	Performance Criterion
1	0%	0.5	B
2	0%	1	B
3	70%	25	C
4	0%	250	C

Test Procedure

- 1) The interruption is introduced at selected phase angles with specified duration.
- 2) Record any degradation of performance.

Test Data and Setup Photo**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-11-27.

Test Mode: Bluetooth Communicating

Level	U2 (% Reduction)	Td (periods)	Phase Angle	N	Pass	Fail
1	0%	0.5	0/90/180/270	3	A	/
2	0%	1	0/90/180/270	3	A	/
3	70%	25	0/90/180/270	3	B	/
4	0%	250	0/90/180/270	3	B	/

**Test Setup Photo**

EXHIBIT A - EUT PHOTOGRAPHS

EUT – Front View



EUT – Rear View



EUT – Cover off View

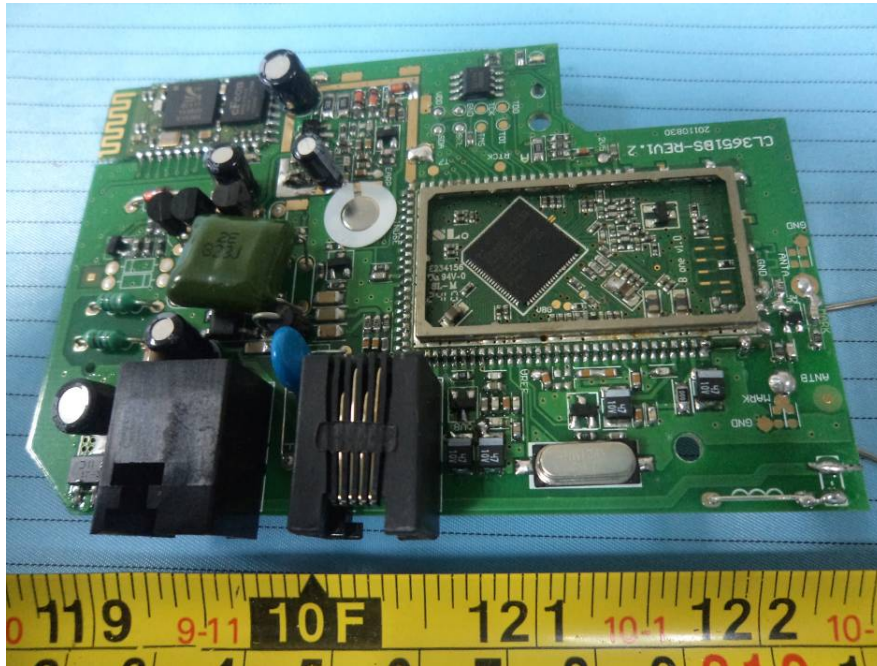


EUT – Main Board Top View

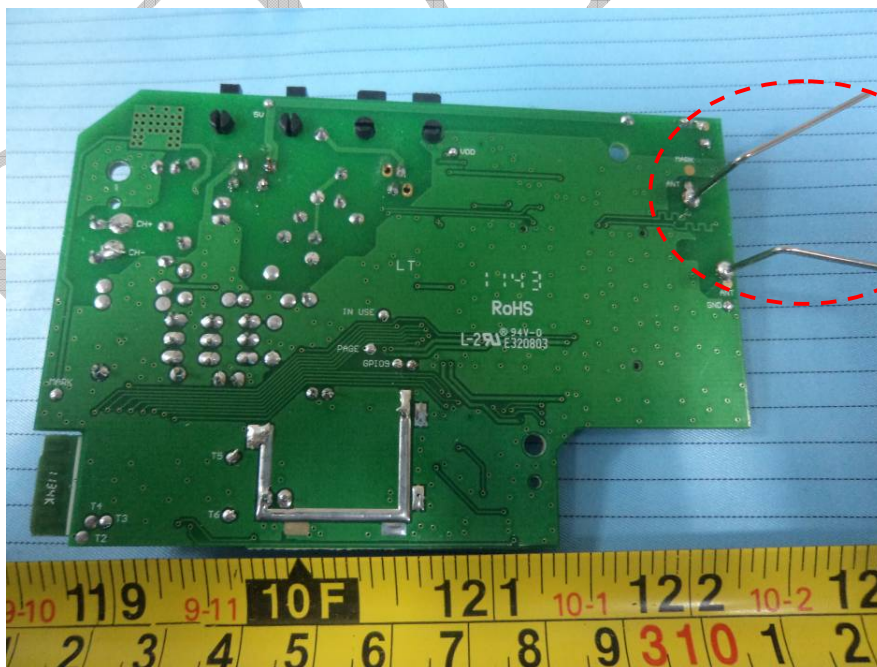


BT Antenna

EUT – Main Board Top Shielding off View

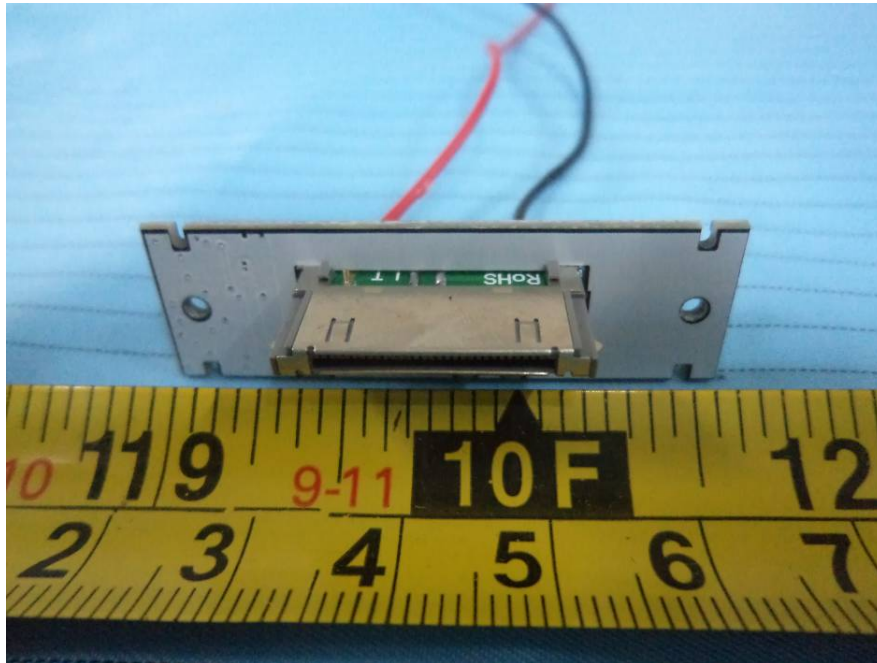


EUT – Main Board Bottom View



DECT Antenna

EUT – iPhone Charging Board Top View



EUT – iPhone Charging Board Bottom View



EUT – Adapter View



EUT – Adapter Label View



EXHIBIT B - TEST SETUP PHOTOGRAPHS

Conducted Emissions - Front View



Conducted Emissions - Side View



Below 1GHz: Radiated Emissions



Above 1 GHz: Radiated Emissions



*******END OF REPORT*******